UNIVERSITY OF CALGARY

World Organisation for Animal Health
Founded as OIE

GADVASU – UCVM TWINNING PROJECT

B.V.Sc. & A.H. Curriculum Reform

Twin Vet Programs at Guru Angad Dev Vet & Animal Sciences Univ & Univ of Calgary, Faculty of Vet Medicine: Forging competency-based curriculum for better vet services in India (since March 01, 2020)

Objective : Build an outcomes-based curriculum using OIE (WOAH) recommendations on Competencies of Graduating Vets & Vet Education focusing on gap analyses, curriculum reform & revision.

Curriculum Reform:

- **38 competencies focussing on paraclinical, clinical, entrepreneurship, zoonoses etc.**

- **HVC was nominated by VCI as Chairman to propose Minimum Standards of Veterinary Education (MSVE-2023), followed by faculty deliberations on minute detail of curriculum in 36 well-attended meetings, each of 3-5 h (~139 h).**

Process Followed

DAY 1 COMPETENCIES OF A VETERINARY GRADUATE

1. Explain the principles of animal husbandry, housing layouts & restraining procedures.
2. Describe breed characteristics, behaviour (at individual & population level) of major animal species, in terms of their regional / national / global importance.
3. Perform deworming, vaccination & animal husbandry procedures (hoof trimming, disbudding, dehorning & beak trimming etc.).
4. Explain animal inspection & certification procedures for registration, transboundary transfer, trading & insurance.
5. Assess nutritional status of an animal based upon performance / production status, feed / fodder quality evaluation & advising about feeding practices / computation of ration based upon season & suitable economics.
6. Explain about animal farm biosecurity, biosafety & biomedical waste management procedures.
7. Describe the ethical, professional & legal responsibilities towards welfare of animals and society.
8. Describe procedures and legal obligations to carry out surveillance, timely reporting, investigation, containment, eradication of animal diseases.
9. Describe Transboundary Animal Diseases, emerging and remerging disease, their global distribution, prevention & control.
10. Describe sector-specific skill requirements to start an entrepreneurial venture viz., rearing economics, health and production benchmarks in order to advise / establish a viable livestock farm (dairy, goatery, piggery & poultry) / dog kennel.
11. Explain the business start-ups in areas of livestock products & feed technologies including supply chain maintenance, consumer base, regulations & disposal in case of mass spoilage of livestock product.
12. Apply food safety standards of animal products on the farm and at the slaughterhouse and processing plants.
13. Describe the anatomy, embryology, life cycle, reproduction & physiology of normal metabolic processes of domestic and farm animals.

14. Describe about aetiology & pathogenesis of various disease conditions in domestic and farm animals.

15. Define parasitic infestations for a particular animal species in different regions & apply preventive / prophylactic measures to be adopted for prospective parasitic diseases.

16. Manage an outbreak of toxic / infectious / non-infectious origin with critical knowledge of first aid measures & exercising emergency control for all animal species along with basic procedures to notify the higher authorities.

17. Prescribe / perform / interpret routine laboratory tests related to toxic / infectious / non-infectious disease conditions (clinical and disease surveillance) of animals including methods of collection, handling, labelling & dispatch of biological materials for laboratory analysis.

18. Describe specific diagnostic tests as well as preventive measures against zoonotic/notifiable Transboundary Animal Diseases & procedural regulations after diagnosing zoonotic/notifiable Transboundary Animal Diseases to client & regulatory bodies.

19. Perform ante mortem inspection & gross post mortem examination, collection / storage / transportation of the tissue samples & disposal of carcass.

20. Demonstrate diagnosis & differential diagnosis skills by distant observation, physical/clinical examination including palpation, auscultation & percussion of an animal patient & interpretation of their physical health parameters.

21. Perform clinical emergency for all animal species & ability to provide critical care as & when required.

22. Explain the role of wildlife in maintenance and spread of Transboundary Animal Diseases (TADs) of importance to domestic animals and zoonoses as well as ability to handle important clinical disease conditions.

23. Perform gynaecological procedures in animal species with ability to diagnose & treat infertility and reduced reproductive efficiency.

24. Communicate management plans to clients regarding their animals.

25. Analyse scientific data and apply evidence informed approaches in animal treatment.

26. Describe pain & stress management in animals including procedural details about humane euthanasia as a disease eradication measure.

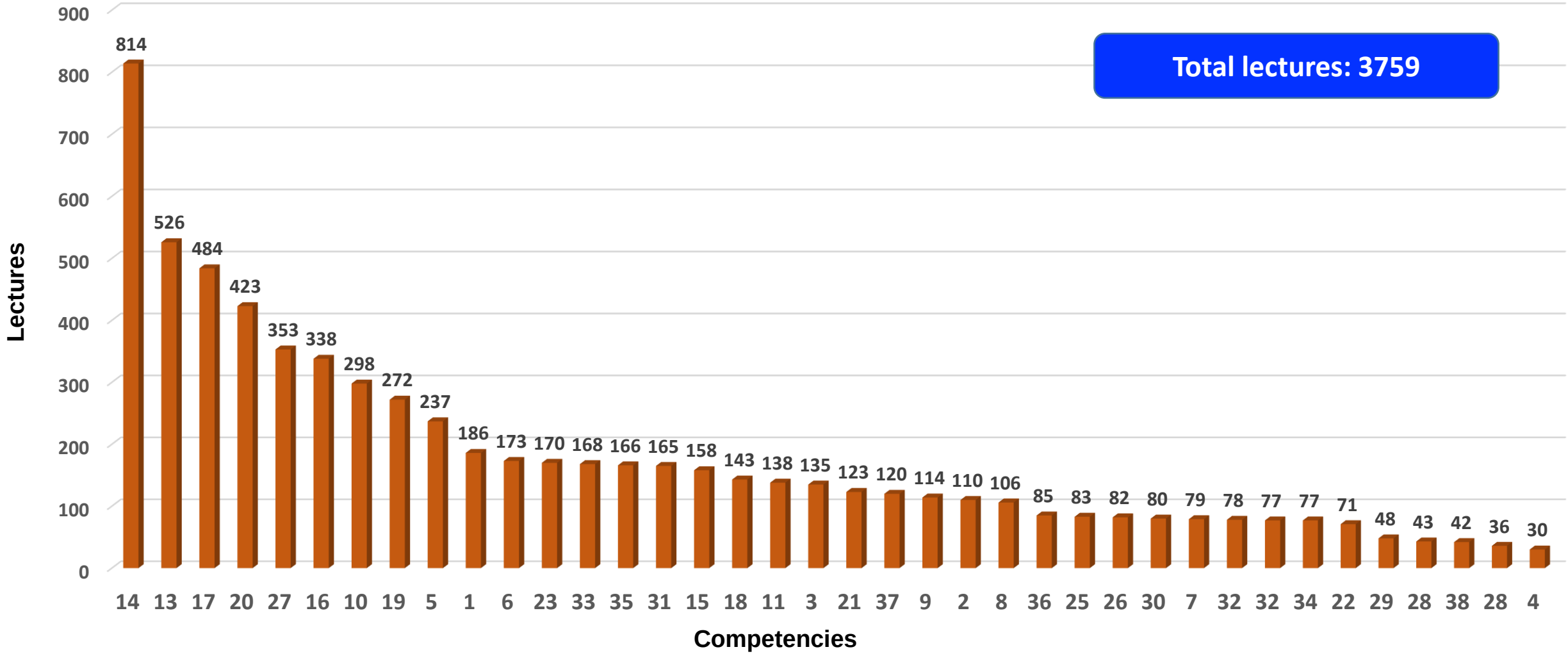
27. Apply a suitable therapeutic plan considering the animal condition & outcome of disease.
28. Define the causes of Antimicrobial resistance, responsible & prudent use of antimicrobials.
29. Describe the legislations about storage, correct prescription & dispensing of veterinary medicines including anaesthetics.
30. Perform anaesthetic procedures (sedation, local, general) & handling anaesthetic emergencies.
31. Define diagnostic imaging aids viz. radiography / ultrasonography in terms of handling equipment, legal procedures & their usage for disease diagnostics / therapeutics.
32. Perform sterlisation of surgical equipment, performing basic aseptic surgeries in all applicable species and handling the surgical emergencies.
33. Describe disinfection procedures of animal hospital & animal farms to reduce the risks of contamination and disease transmission.
34. Describe the general principles of epidemiology and the application of these principles to disease control.
35. Establish pet animal clinical practice through dedicated clinical facility.
36. Demonstrate skills required to organize mass camps, disseminate latest scientific information / technologies & advice livestock / pet owners & veterinary professionals & paravets.
37. Perform a self-SWOT (Strength, Weakness, Opportunities, Threats) analysis as a veterinary professional and improve self-competencies.
38. Describe the ability to implement one-health policy through an effective collaborative strategy with health professionals & scientists.

CURRICULUM DATA GATHERING FRAMEWORK and ANALYSIS

18 Courses & 3,759 Lectures mapped

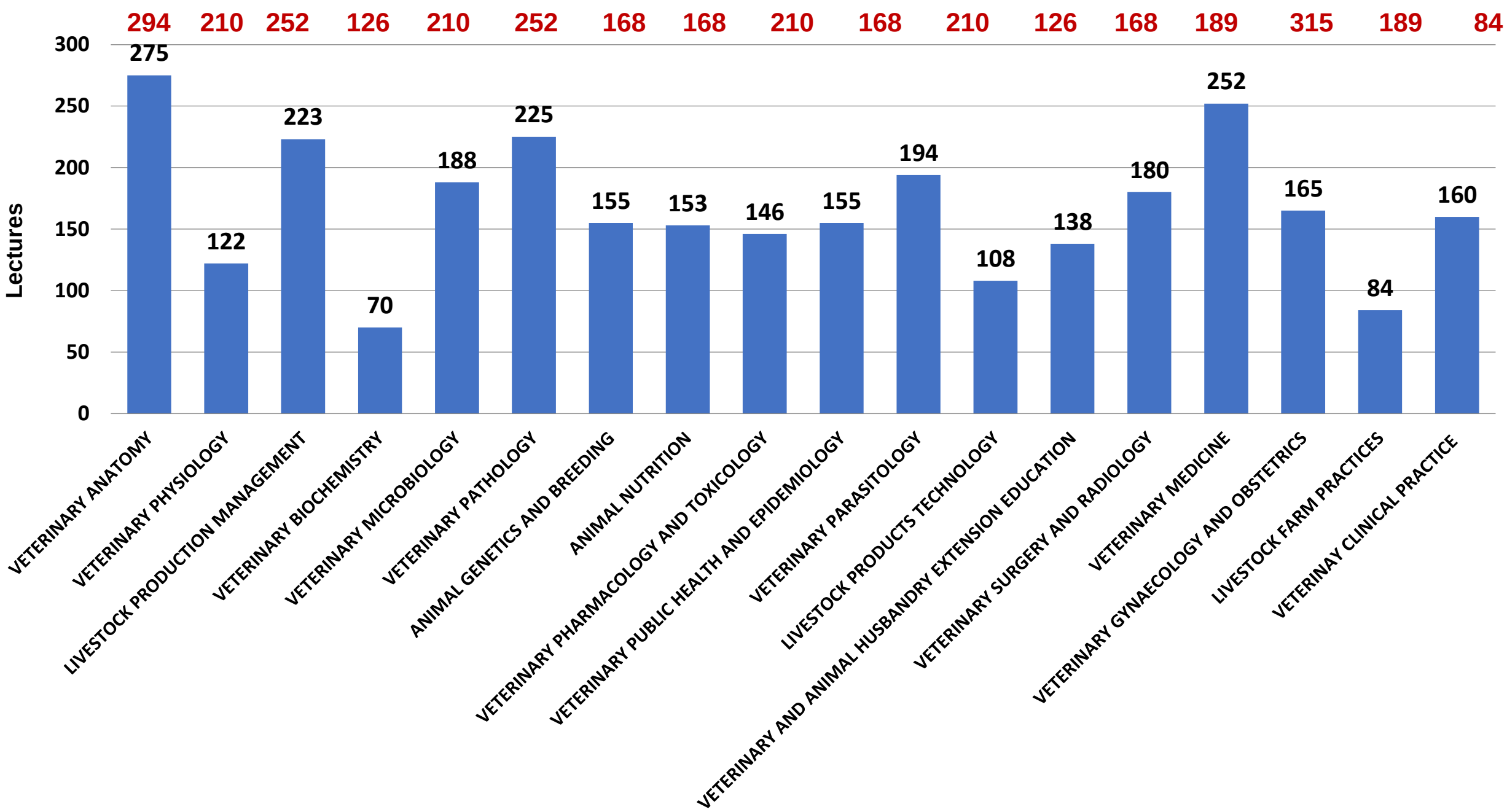
	A	B	C	D	E	F	G	
1								
2		1	2	3	4	5	6	
3	**Competency Targets of Course Outcomes**	Explain the principles of animal husbandry, housing layouts & restraining procedures.	Describe breed characteristics, behaviour (at individual & population level) of major animal species, in terms of their regional / national / global importance.	Perform deworming, vaccination & animal husbandry procedures (hoof trimming,disbudding, dehorning & beak trimming etc.).	Explain animal inspection & certification procedures for registration, transboundary transfer, trading & insurance.	Assess nutritional status of an animal based upon performance / production status, feed / fodder quality evaluation & advising about feeding practices / computation of ration based upon season & suitable economics.	Explain about animal farm biosecurity, biosafety & biomedical waste management procedures.	Describe the et professional & l responsibilities of animals and
4								
5	**MSVE Syllabus Unit Wise (enlist)**							
6								
508	**Total number of course Lectures/Practicals link to enabling competency**	4	3			6		
509								
510	**Livestock Production Management**							
511	**Unit-1 (General Livestock Management)**							
512	Common animal husbandry terms (glossary).	I						
513	Demographic distribution of livestock and role in Indian economy.	I						
514	Problems and prospects of livestock industry in India.	I						
515	Body conformation and identification.	I						
516	Transportation of livestock and wild or zoo animals.							
517	Common farm management practices including disinfection, isolation,						I	
518	quarantine and disposal of carcass.							
519	Introduction to methods of drug administration.			I				
520	Common vices of animals (Ruminants), their prevention and care.		I					
521	Livestock production systems.	I						
522	Animal holding and land holding patterns in different agro-climatic zones.	I						
523	Organic livestock production.					I		
524	Judging and BCS for body parts of livestock.							
525	Preparation of animals for show.							
526	Culling of animals.			I				
527	Selection and purchase of livestock.							
528	**PRACTICAL**							
529	General introduction of the Institute animal farm.	I						
530	Identification of common tools used on animal farm.			D				
531	Familiarization with body points of animals.	I						
532	Methods of identification (marking, tattooing, branding, tagging and electronic chip under pre emptive analgesia).			D				
533	Use of rope for knot and halter making.	I						
534	Dentition and ageing of animals.			D				

Total number of lectures linked to Program Competency (Highest to lowest)

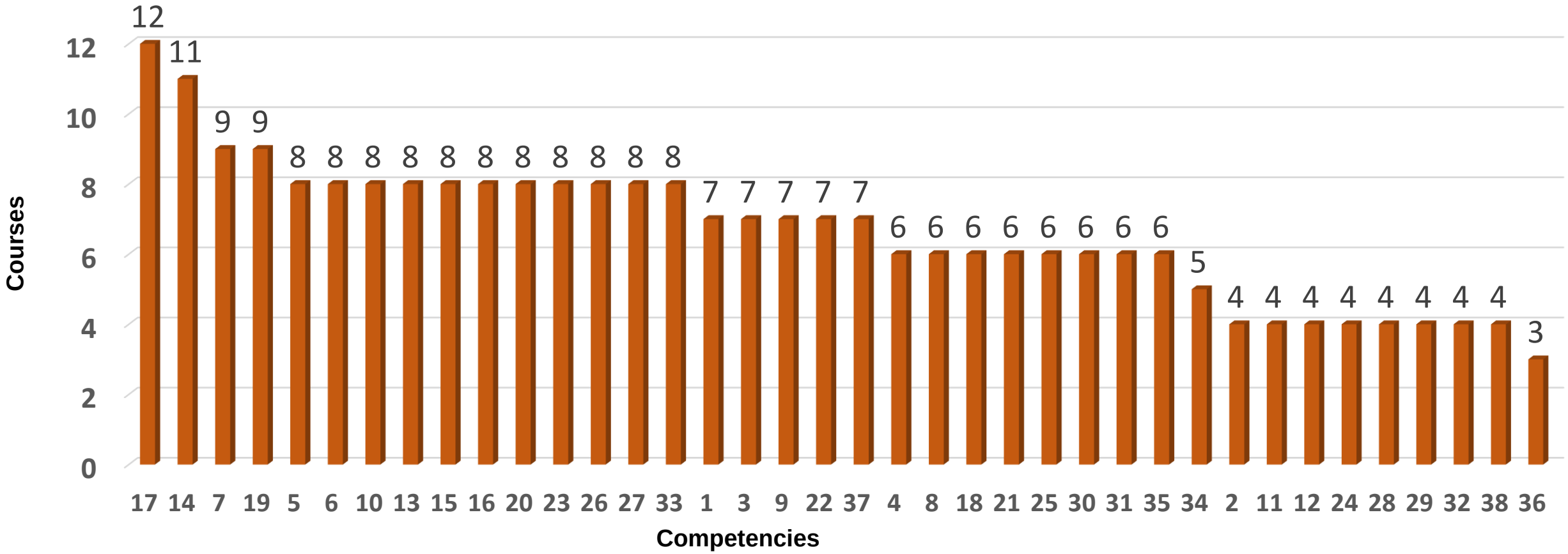


14: Knowledge about aetiology & pathogenesis of various disease conditions in animals.
13: Comprehension of anatomy, embryology, life cycle, reproduction & physiology of normal metabolic processes of animals.
28: Define the causes of Antimicrobial resistance, responsible & prudent use of antimicrobials.
4: Explain animal inspection & certification procedures for registration, transboundary transfer, trading & insurance.

Total Number of Lectures linked to Program Competency (Department wise)

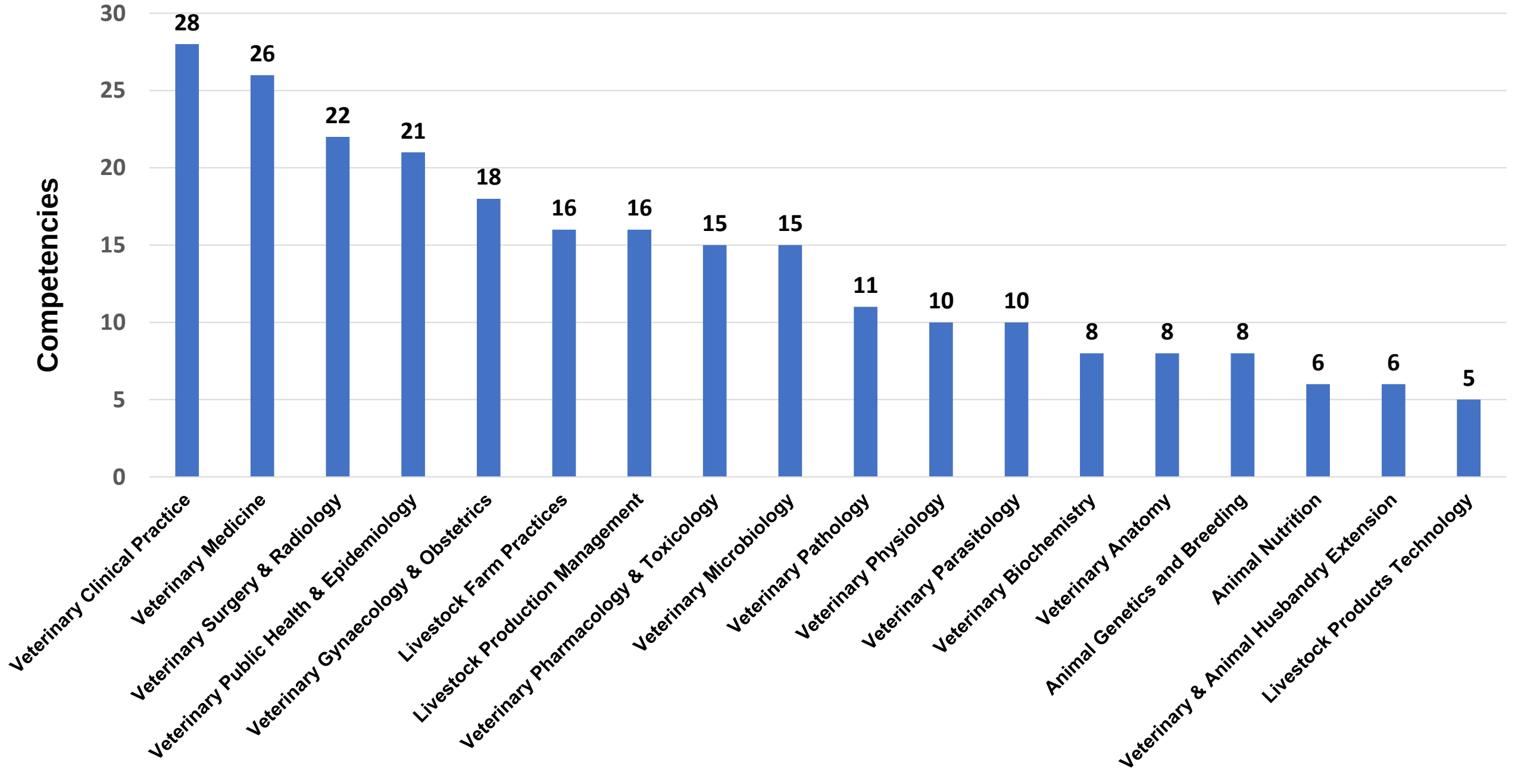


Total number of courses linked to Program Competency (Highest to lowest)



17: Knowledge about prescribing / performing / interpreting routine laboratory tests related to toxic / infectious / non-infectious disease conditions of animals including method of collection, handling, labelling & dispatch of biological materials for laboratory analysis.
14: Knowledge about aetiology & pathogenesis of various disease conditions in animals.
38: Describe the ability to implement one-health policy through an effective collaborative strategy with health professionals & scientists.
36: Communication skills required to organize mass camps, disseminate latest scientific information / technologies & advice livestock / pet owners & veterinary professionals & paravets.

Total Number of Competencies linked to Courses (Highest to lowest)



Proposed Curriculum 2023

	Credit Hours	Total Lectures	Linked to Competencies	Lectures Linked to Competencies	Percentage	Credit Hours	Total Lectures	Linked to Competencies	Lectures Linked to Competencies	Percentage
Veterinary Anatomy	4+3	294	8	275	93.53	7+5	240	8	232	96.66
Veterinary Physiology	4+1	210	10	122	58.09	7+2	180	10	160	88.88
Livestock Production Management	4+2	252	17	223	88.49	5+2	180	17	151	83.88
Veterinary Biochemistry	2+1	126	8	70	55.55	6+3	175	9	131	74.85
Veterinary Microbiology	3+2	210	14	188	89.52	7+3	200	13	182	91.00
Veterinary Pathology	4+2	252	12	225	89.28	6+4	253	13	245	96.83
Animal Genetics and Breeding	3+1	168	9	155	92.26	6+2	160	8	160	100.00
Animal Nutrition	3+1	168	6	153	91.07	5+2	154	6	154	100.00
Livestock Farm Practices	0+2	84	17	84	100.00	0+9	180	16	180	100.00
Veterinary Pharmacology and Toxicology	4+1	210	15	146	69.52	8+2	200	16	164	82.00
Veterinary Public Health & Epidemiology	3+1	168	22	155	92.26	6+3	186	21	183	98.38
Veterinary Parasitology	3+2	210	10	194	92.38	6+4	200	9	200	100.00
Livestock Products Technology	2+1	126	5	108	85.71	3+2	100	5	82	82.00
Veterinary & Animal Husbandry Extension Education	3+1	168	6	138	82.14	5+2	140	6	109	77.85
Veterinary Surgery and Radiology	2+1	189	21	180	95.23	7+4	212	21	207	97.64
Veterinary Medicine	4+1	315	26	252	80.00	13+3	320	25	315	98.43
Veterinary Gynaecology and Obstetrics	2+1	189	18	165	87.30	5+4	180	18	166	92.22
Veterinary Clinical Practice	0 + 7	420	28	420	100.00	1 + 18	380	28	380	100.00
		3759	**14**	**3253**	**86.53**		**3640**	**13.833**	**3401**	**93.43**
			6.9874					6.8449		
			1.6469					1.6134		

SURVEY BASED ON EVALUATION TOOL CHARTS

Evaluation of OIE Day 1 Competencies
Session 2: Infectious Diseases

Day 1 Competency: 2.2 Transboundary Animal Diseases (TAD)

a.) Disease Recognition

- Common TAD Pathogens
- Transmission Pathways
- Country Level Points of Entry
- Clinical Course

Is the average Day 1 graduate able to:	Highly Competent	Moderately Competent	Insufficiently Competent	Not Competent	Not in Curriculum	Comments
List and describe common and important TAD pathogens? (i.e. OIE reportable and important country foreign and notifiable animal diseases such as highly pathogenic avian influenza, ND, AHS, CBPP, PPR, rinderpest, classical swine fever, FMD, LSD, RVF and etc.)						
List the most common transmission pathways for TAD?						
List the likely country level points of entry for TAD?						
List important animal clinical signs associated with important TAD?						

SURVEY BASED ON EVALUATION TOOL CHARTS

DAY 1 COMPETENCIES OF A VETERINARY GRADUATE							
		Not in Curriculum	Highly Competent	Moderately Competent	Insufficiently Competent	Not Competent	Comments
1.	Explain the principles of animal husbandry, housing layouts & restraining procedures.						
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10.	Describe sector-specific skill requirements to start an entrepreneurial venture viz., rearing economics, health and production benchmarks in						

BENEFITS TO UNIVERSITY & EDUCATION CURRICULUM

- Competent Day 1 veterinary graduate who is ready to perform entry level national veterinary tasks at global level.
- Implement changed curriculum reforms at national level.
- Baseline for continuous analysis of curriculum- Identification of gaps and overlapping course contents.
- To Course Instructors- Better understanding of the entire program and their responsibilities in delivering the learning outcomes of program.
- Proposal of new curriculum – Aligned with WOAH guidelines based on the gaps in the existing curriculum.
- Strengthening of the Teaching Academy.

TEACHING ACADEMY

- Create highly skilled leaders and master teachers
- Develop effective teaching skills, competency-based curriculum development and teaching philosophies.

BENEFITS SHARING

- Curriculum sharing
- Skilled leaders - introducing active learning methods (Problem Based Learning: PBL)
- Use of Competency Evaluation tool – For faculty, student and stakeholder feedback.
- Online materials or Elective Courses for the competencies analyzed with gaps in curriculum.

Thank You!